

CASE REPORT

Skin Pigmentation Effects of Psoralea Corylifolia: A Case Study of Vitiligo

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ABSTRACT

Vitiligo is an abnormal skin condition characterized by depigmentation of normal skin colour. It negatively affects emotions, psychology, and self-esteem of a patient, especially conspicuous in the females who are more conscious about their aesthetic appearance. It prevails equally in society affecting both sexes. Vitiligo has no permanent cure. Psoralea corylifolia (PC) has been reported to yield significant positive outcomes in vitiligo management. In current study, after approval from the ethical review board, a male patient (17 years old) having vitiligo patches distributed on his skin symmetrically and having history of using solution of honey and milk for facial partial pigmentation, was instructed to take half teaspoonful (equivalent to 05 grams) of powdered seed of PC orally and to apply topically a cream containing hydroalcoholic extract (5% w/w) of the PC seed regularly. The subject was naturally exposed to sunrays during his daily life activities. Liver and renal functions were regularly (before treatment and 30 days thereafter) monitored to avoid any untoward effects of oral therapy. Gradual pigmentation was recorded through photographs taken on regular basis. The self-controlled study design was followed. Local (topical cream) and systemic (oral powder from PC) therapy was found to have an additive effect in complete restoration of the pigmentation of skin of the volunteer as compared to self-controlled study design. Full facial pigmentation was obtained in six-month therapy. Liver and renal functions remained undisturbed throughout the course of treatment. The powder form of P.C and its extract incorporated in cream were found safe and efficacious for pigmentation of the vitiliginous skin.

Key Words: *Depigmentation, Pigmentation, Psoralea Corylifolia, Vitiligo.*

Introduction

Vitiligo is a depigmenting and an acquired idiopathic disorder of the skin that causes the loss of melanocytes (pigment cells). Vitiligo patches are well defined having a milky-white appearance of skin. It can be stigmatic cosmetically, especially in the population with a dark color of skin. Vitiligo is prevalent (1 to 2%) in all races, more common in Indian population.¹ Loss of pigments occurs more commonly in teen ages. Although Vitiligo equally affects males and females, however, its psychological complications are comparatively more conspicuous in females because it hinders their natural beauty and appearance. There is no definitive cause of Vitiligo. Studies have pointed out it to be an autoimmune disorder, genetic stress, harm to skin, a stressful incident, skin burn, hereditary (familial

link), exposure to chemicals and viral etc.² Vitiligo disease is not contagious. It is classified into non-segmental Vitiligo (symmetrical) and segmental Vitiligo (asymmetrical). Non-segmental vitiligo is sub-classified into acrofacial, focal, generalized, mucosal, and universal Vitiligo. There are many remedies that can help to decrease the appearance of Vitiligo on the affected skin e.g phototherapy with UV light, skin camouflage, topical corticosteroids, calcipotriene, calcineurin inhibitors. psoralen, skin grafts, tattooing, and depigmentation. A successful treatment is not yet available for Vitiligo. There is a need for randomized controlled trials, using PC for this disease.³

Case Report

A 17 years old male with the history of generalized Vitiligo since the age of 06 years. He had used solution of milk and honey that had resulted partial pigmentation on his face. He had no family history of the disease. The patient was otherwise healthy without symptoms of any other illness. Prior consent of the patient and his guardian treatment protocol was developed considering the drug profile. Approval was obtained for human studies by the ethical review committee of University. Based on the reported anti-vitiligo potential of the PC, oral, as well

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as topical regimens were selected to be used concomitantly after successful patch testing of a cream containing hydroalcoholic extract of *Psoralea corylifolia*. The subject was instructed to take daily a half teaspoonful (equivalent to 5 grams) of the powdered seeds of PC orally and to topically apply the cream containing PC extract (5% w/w) once a day in the morning. The cream was used only on face rendering the remaining body parts as self-control for this topical therapy. The subject was naturally exposed to sunrays during his daily life activities (around 2 to 3 hours in average) resulting UV mediated activation of psoralens for their therapeutic action. Liver and kidney functions were monitored regularly (before treatment and 30 days thereafter) to rule out side effects of psoralens used orally. Complete blood count (CBC) of the patient was undertaken twice (before the start and after completion of therapy). Pigmentation effect of the therapy was recorded by photographs of the patient taken at regular intervals to measure the clinical outcome. After 15 days of starting this medication, the Process of repigmentation was observed. Development of visible dots on other parts of the body and rehabilitated pigment on facial skin was noted. The treatment was continued uninterrupted for up to 24 weeks for obtaining full facial pigmentation (Figure 1). Liver and renal function parameters remained normal during this period with a minor elevation of serum bilirubin up to an upper normal limit. CBC remained normal at the completion of treatment.



Fig 1: (a-d). Evolution of Facial Pigmentation

- a. Before start of Therapy
- b. After 60 days of Therapy
- c. After 120 days of Therapy
- d. After 180 days of Therapy

Discussion

A skin-friendly emulsion containing hydroalcoholic extract of PC was found compatible for the case along with oral powder form of PC. Interestingly, the combination of oral and topical remedy remained

safe as well as efficacious in complete restoration of the pigmentation of the vitiliginous facial skin. A half teaspoonful (equivalent to 5 grams) of the powder form of PC was adjusted as an oral dose that was well tolerated by the volunteer. Full facial pigmentation was observed comparative to self-control. Psoralens have been found effective for pigmenting the leucoderma of the vitiligo with possible safety concerns related to hepatic injuries.⁴ Cholestatic Jaundice have been reported in a case study, with the use of powdered seeds of *Psoralea corylifolia* at higher doses (10 times the usual dose). Liver biopsy revealed degenerating cells, zone three necrosis, infiltrations and cholestasis⁵ Topical and oral psoralens have been used with variable results in the mitigation of vitiligo.⁶ Topical therapy has been employed in the management of vitiligo by incorporating psoralens in the topical formulations. Although dermaticals have an important role in vitiligo treatment, poor efficacy and side effects influence their usage and patient compliance. Strategies to design different formulations can have a pivotal role in improving the topical drug delivery systems.⁷ Ointment containing powder form of *Psoralea corylifolia* has been reported as an effective remedy for small circular vitiliginous lesions.⁸ The oral therapy of *Psoralea corylifolia* was observed safe in current case study although acute drug induced hepatotoxic reactions have been reported with the use of *Psoralea corylifolia* in two separate case studies; one on a 48 years old and other on a 52 years old female patient, respectively. The use of powdered drug had resulted elevation of ALT, AST and bilirubin along with the symptoms of decreased appetite, weakness, dark urine, jaundice, pruritus, vomiting and abdominal pain.^{9,10}

Conclusion

Combination of topical and oral PC can be safe and effective for the pigmentation of vitiliginous skin.

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REFERENCES

1. Khandalavala BN, Nirmalraj MC, Rapid partial repigmentation of vitiligo in a young female adult with a gluten-free diet. *Clin Dermatol* 2014;6(3):283-7.
2. Patel NS, Paghda KV, Cohen GF. Advanced treatment modalities for vitiligo. *Dermatol Surg* 2012;38(3):381-91.

3. Bordere AC, Lambert J, van Geel N. Current and emerging therapy for the management of vitiligo. *Clin Cosmet Investig Dermatol* 2009;12:215-25.
 4. Cheung WI, Tse ML, Ngan T, Lin J, Lee WK, Poon WT, Mak TWI, Leung VKS, Chau TN. Liver injury associated with the use of Fructus *Psoraleae* (Bol-gol-zhee or Bu-gu-zhi) and its related proprietary medicine. *Clinical Toxicology* 2009;47(7):683-5.
 5. Nam SW, Baek JT, Lee DS, Kang SB, Ahn BM, and Chung KW. A case of Acute Cholestatic Hepatitis Associated with the seeds of *Psoralea corylifolia* (Boh-Gol-Zhee). *Clinical Toxicology* 2005;43(6):589-91.
 6. Njoo MD, Westerhof W. Vitiligo, Pathogenesis and treatment. *Am J Clin Dermatol* 2001;2:167–81.
 7. Garg BJ, Sarawat A, Bhatia A, Katare OP. Topical treatment in vitiligo and the potential uses of new drug delivery systems. *Indian Journal of dermatology, venereology and Leprology* 2010;76(3):231-8.
 8. Hussain I, Hussain N, Manan A, Rashid A, Khan B, Bakhsh S. Fabrication of anti-vitiligo ointment containing *Psoralea corylifolia*: in vitro and in vivo characterization. *Drug Design, Development and Therapy* 2016;10:3805 - 16.
 9. Smith D A, MacDonald S. A rare case of acute hepatitis induced by use of Babchi seeds as an Ayurvedic remedy for vitiligo. *BMJ* 2014;6:1-3.
 10. Quayson E, Berman AJ, Regina AC, Sud P. Hepatotoxicity associated with the use of *Psoralea corylifolia* used to treat vitiligo. *Clin. Toxicol* 2015;53(7):741-41.
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